Facility: Crystal River 2009-301 Date of Examination: 8/31-9/18/2009

Examinations Developed by: **Facility**

Written / Operating Test

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	3/26/2009
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	05/04/2009
-120	3. Facility contact briefed on security and other requirements (C.2.c)	3/26/2009
-120	4. Corporate notification letter sent (C.2.d)	05/04/2009
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 2)]	N/A
{-75}	6. Integrated examination outline(s) due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, ES-D-1's, ES-401-1/2, ES-401-3, and ES-401-4, as applicable (C.1.e and f; C.3.d)	06/17/2009
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	6/23/2009
{-45}	8. Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6), and reference materials due (C.1.e, f, g and h; C.3.d)	07/22/2009
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.l; C.2.g; ES-202)	07/31/2009
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.l; C.2.i; ES-202)	08/10/2009
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	08/10/2009
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	08/10/2009
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	8/17/2009
-7	14. Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 4; ES-202, C.2.e; ES-204)	8/17/2009
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	8/17/2009
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	8/17/2009

* Target dates are generally based on facility-prepared examinations and are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.
[Applies only] {Does not apply} to examinations prepared by the NRC.

Facility: Crystal River Unit #3		Date of Exam: 08/31/09 thru 09/21/09			
Item		Task Description	Initials a	b*	c#
1. WRITTEN	a.	Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	AK		
	b.	Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	AK		
	c.	Assess whether the outline over-emphasizes any systems, evolutions, or generic topics	AK		
	d.	Assess whether the justifications for deselected or rejected K/A statements are appropriate.	AK		
2. SIMULATOR	a.	Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	AK		
	b.	Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.	AK		
	c.	To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.	AK		
3. W / T	a.	Verify that the systems walk-through outline meets the criteria of Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	AK		
	b.	Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations	AK		
	c.	Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	AK		
4. GENERAL	a.	Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	AK		
	b.	Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate	AK		
	c.	Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5	AK		
	d.	Check for duplication and overlap among exam sections.	AK		
	e.	Check the entire exam for balance of coverage.	AK		
	f.	Assess whether the exam fits the appropriate job level (RO or SRO)	AK		

	Printed Name / Signature	Date
a. Author	Alan Kennedy	06/10/09
b. Facility Reviewer (*)	Floyd Lawrence	06/11/09
c. NRC Chief Examiner (#)	GERARD W. LASKA	08/25/2009
d. NRC Supervisor	MALCOLM T. WIDMANN	08/26/09

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

CRYSTAL RIVER -3 2009-301

ES-201 **Examination Security Agreement** Form ES-201-3

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of **08/31/09 thru 09/21/09** as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of **08/31/09 thru 09/21/09**. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	Alan Kennedy	Instructor / Facility Author	Alan Kennedy	01/29/09	Alan Kennedy	9/22/09
2.	TRUC DUONG	SIMULATOR ENGINEER	Truc Duong	2/10/09		9/28/09
3.	PERRY L ROSE	SIMULATOR ENGINEER	Perry L. Rose	02-10-09		☆
4.	GEORGE M. MURPHY	SR NUC OPS INSTR	George M. Murphy	3/31/09	George M. Murphy	9/22/09
5.	James R Craig III	Sr Nuc Ops INSTR		4/14/09	NA	9/28/09
6.	Floyd Lawrence	SUPV. OIT	Floyd E Lee	4/17/9	Floyd E Lawrence	9/22/09
7.	Jennifer Livingston	Admin			4/28/09	T/23/09
8.	Eddie Little	CRS-		4-28-9		9-25-9

NOTES:

* Discussed EMail (Exam Security) Concern with Gerry Laska today, 5-28-09. NCR 00337816

☆ Confirmed via Telcon on 10/1/09
10/1/09

ES-201	Examination Security Agreement	Form ES-201-3

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	Mark Garrison	CNO		4/28/09		9/26/09
2.	R. Lee Linton	Sim. Support		4/29/09		9/27/09
* 3.	Mary Bracewell	SRO	Mary Bracewell	5/7/09	Mary Bracewell	9/23/09
4.	Robert Bolin	EXAM DEVELOPER - BNP		5/20/09	☆	
5.	Ernest Lee	CNO		20 May 09		26 Sep 09
6.	Brandon Webster	CNO		5.20.9		9.26.9
7.	Richard O. Moore	EXAM Reviewer		5/20/09	☆	
8.	Archie Lucky	Exam Review HNP		5/20/09	☆	

NOTES:

☆ Confirmed via email on 9/28/09
☆ 9/28/09

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Gary McCallum	Shift Manager		5/22/09		9-26-09	
2.	Rick Melton	Shift Manager		5/23/09		9/27/09	
3.	John R Steely	Owner OTM		6/12/09			☆
4.	Mark Van Sickle	SOT		7/1/09		9/27/09	
5.	Mike Kelly	Mgr Shift Ops		7/6/09		9/26/09	
6.	Christopher A Ray	Reactor Operator		7/6/09		9/26/09	
7.	William A Krechely	STA / OPS		7-7-09		9-27-09	
8.	John D Taylor	STA / OPS		7/7/09		9/26/09	

NOTES:

☆ Confirmed via Email on 9/30/09 & 9/30/09

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	RONALD TYRIE	Shift Manager "E" CREW	RDT	08/15/09	RDT	9/26/09	
2.	William F. Kisner Jr.	CRS / 'B' Crew	William F Kisner	7/11/9	William F Kisner	9/23/9	
3.	Charles J. Morris III	Operations Manager	CJM III	7/14/9	CJM III	9/26/9	
4.	D. MCKAY	SM / B CREW	DMcK	7.16.9	DMcK	9.26.9	
5.	JAMES T. ATKINSON	CNO / 'D' CREW	JTA	7/17/09	JTA	9/26/09	
6.	ED MUIR	CNO / D CREW	EJM	7/29/9	EJM	9.26.9	
7.	R. LLEWELLYN	Instructor	RLL	8-4-9	RLL	9-23-9	
8.	Brian Barnhart	Intern		8-5-09	MaB	9.22.9	①

NOTES:

① Returned to UF MaB 9.22.9

ES-201 **Examination Security Agreement** **Form ES-201-3**

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Jack Springer	Consultant		8/17/09		9/28/09	
2.	~~A. WEAVER~~	~~ENG~~		8.26.9		duplicate	9.22.9 MB
3.	Scott Kujak	SRO Instructor	Scott Kujak	8/27/09	S. Kujak		
4.	Alan Schilk	Support		8/27/09		9/23/09	
5.	Steve Carter	SRO Instructor		8-31-09		8/31/09	
6.	ROBERT K MONTGOMERY	SRO INSTRUCTOR		8/31/09	~~8/31/09~~	☆ 8/31/09	☆
7.	Broussard, Mark	Lead		8.31.9		9.22.9	
8.	Dixon, Phyllis	Trng Mgr		8/31/09		9/22/09	

NOTES:

☆ Confirmed via email on 9/29/09 ☆ 9/29/09

ES-201 **Examination Security Agreement** **Form ES-201-3**

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Myke Furiosi	SR Ops Instructor	M J Furiosi	8/31/09	☆		
2.	Robert E. Murray	Shift Manager / Surrogate	Robert E Murray	9/1/09	Robert E Murray	9/23/09	
3.	Leon Gagne	SRO / Validat	Leon A. Gagné	9.3.9	S2 Betts	9/26/09 9/26/9	
4.	Stephen Betts	RO	S2 Betts	9-3-9	↓	↓	
5.	R.G. Suber	CRS / SRO		9/3/9	J. Suber	9/23/9	
6.	James Holt	PGM	Holt	9/3/9	Holt	9/23/09	
7.	Timothy M. Maroney	Nuc Ops Specialist	Timothy M. Maroney	9/10/09	Timothy M. Maroney	9/23/09	
8.	JONATHAN HUECKER	SHIFT MANAGER		9/14/09		9/23/9	

NOTES:

☆ Confirmed via email on 9/28/09
☆ 9/28/09

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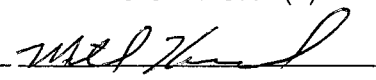
	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Michael Kennard	SRO Direct		9-17-09			☆
2.							
3.							
4.							
5.							
6.							
7.							
8.							

NOTES:

☆ Confirmed via email on 10/1/09 ☆ 10/1/09

ES-201 | Examination Security Agreement | Form ES-201-3

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Alan Kennedy	Instructor / Facility Author	Alan Kennedy	01/29/09			
2.	TRUC DUONG	SIMULATOR ENGINEER		2/10/09			
3.	PERRY L. ROSE	SIMULATOR ENGINEER		02-10-09			
4.	GEORGE M. MURPHY	SR NUC OPS INSTR		3/31/09			
5.	James R Craighit	Sr Nuc Ops Instr		4/14/09			
6.	Floyd Lawrence	SUPV. OIT		4/17/9			
7.	Jennifer Livingston	Admin			4/28/09		
8.	Eddie Riffle	CRS-		4-28-9			

NOTES:

* Discussed email (exam security) concern with Gerry Laska today, 5-28-09. # NCR 00337816

ES-201 | Examination Security Agreement | Form ES-201-3

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Mark Garrison	CNO		4/28/09			
2.	B. Lee Linton	Sim. Support		4/29/09			
3.	Mary Bracewell	SRO	Mary Bracewell	5/7/09			
4.	Robert Bolin	Exam Developer - BNP	Robert Bolin	5/20/09			
5.	Ernest Lee	CNO	Ernest Lee	20 May 09			
6.	Brandon Webster	CNO		5.20.9			
7.	Richard O. Moore	Exam Reviewer		5/20/09			
8.	Archie Lucky	Exam Review HNP	Archie Lucky	5/20/09			

NOTES:

ES-201 | Examination Security Agreement | Form ES-201-3

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Gary McCallum	Shift Manager		5/22/09			
2.	Rick Melton	Shift Manager		5/23/09			
3.							
4.							
5.							
6.							
7.							
8.							

NOTES:

DRAFT

Copy

ES-201 | Examination Security Agreement | Form ES-201-3

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of **08/31/09 thru 09/21/09** as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of **08/31/09 thru 09/21/09**. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Alan Kennedy	Instructor / Facility Author	Alan Kennedy	01/29/09			
2.	TRUC DUONG	SIMULATOR ENGINEER	Truc Duong	2/10/09			
3.	PERRY L ROSE	SIMULATOR ENGINEER	Perry L. Rose	02-10-09			
4.	GEORGE M. MURPHY	SR NUC OPS INSTR	George M. Murphy	3/31/09			
5.	James R Graybit	Sr Nuc Ops INSTR		4/17/09			
6.	Floyd Lawrence	SUPV. OIT	Floyd E Lawrence	4/17/9			
7.	Jennifer Livingston	Admin		4/28/09			
8.	Eddie Riffle	CRS-		4-28-9			

NOTES:

* Discussed email (exam security) concern with Gerry Laska today, 5-28-09. AR NCR 00337816

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Mark Gaerlson	CNO		4/28/9			
2.	R. Lee Linton	Sim. Support		4/29/09			
3.	Mary Bracewell	SRO	Mary Bracewell	5/7/09			
4.	Robert Bolin	Exam Developer - BNP	Robert Bolin	5/20/09			
5.	Ernest Lee	CNO	Ernest Lee	20 May 09			
6.	Brandon Webster	CNO		5.20.9			
7.	Richard O. Moore	Exam Reviewer		5/20/09			
8.	Archie Lucky	Exam Review HNP	Archie Lucky	5/20/09			

NOTES:

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Gary McCallum	Shift Manager		5/22/09			
2.	Rick Melton	Shift Manager		5/23/09			
3.	John R Steely	Owner OTM		6/12/09			
4.	Mark Van Sickle	SOT		7/1/09			
5.	Mike Kelly	Mgr Shift Ops		7/6/09			
6.	Christopher A Ruff	Reactor Operator		7/6/09			
7.	William A Krechely	STA / OPS		7-7-09			
8.	John O Taylor	STA / OPS		7/7/09			

NOTES:

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	RONALD TYRIE	Shift Manager "E" CREW	RJT	08/31/09			
2.	William F. Kisner Jr	CRS / 'B' crew	William F Kisner Jr	7/11/9			
3.	Charles J. Morris III	Operations Manager	CJM III	7/14/9			
4.	D. MCAfee	SM / B crew	DMcA	7.16.9			
5.	JAMES T. ATKINSON	CNO / 'D' CREW	J.T. Atkinson	7/17/09			
6.							
7.							
8.							

NOTES:

Facility: Crystal River Unit #3	Date of Exam: 08/31/09 thru 09/18/09
Examination Level: RO ☒ SRO ☒	Operating Test Number: 1

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, R	SRO Only – (CO1) – Determine actions for primary to secondary leakage. *K/A – G2.1.25 SRO 4.2* CP-152
Conduct of Operations	M, R	RO & SRO – (CO2) – Perform a time to boil / core uncovery calculation. *K/A – G2.1.23 RO 4.3 SRO 4.4* OP-103H
Equipment Control	D, R	RO & SRO – (EC1) – Perform a monthly NI Imbalance Comparison. *K/A – G2.2.12 RO 3.7 SRO 4.1* SRO Only – After completing the Imbalance Comparison determine required ITS actions, if any. *K/A – G2.2.40 SRO 4.7* SP-312B
Radiation Control	D, M, P, R	RO & SRO – (RC1) – Calculate the maximum permissible stay time with an Emergency Event in progress. *K/A – G2.3.4 RO 3.2 SRO 3.7* EM-202
Emergency Procedures / Plan	D, S	RO – (EP1) – Make required notifications using provided State of Florida Notification Message form. SRO Only – (EP2) – Determine Emergency Action Level and Protective Action Recommendations. *K/A – 2.4.43 RO 3.2 SRO 3.8* EM-202

Note:	All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:	(C)ontrol room, (S)imulator or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤1; randomly selected)

Facility: Crystal River Unit #3	Date of Exam: 08/31/09 thru 09/18/09
Exam Level: RO ☒ SRO-I ☒ SRO-U ☒	Operating Test Number: 1

Control Room systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U, including 1 ESF)

	System / JPM Title		Type Code*	Safety Function
a.	CA – Perform an RCS Boration K/A – 024AA2.04 RO 3.4 SRO 4.2 (EOP-2)	**[SRO-U]** **[RO, SRO-I]**	A, D, S	1
b.	CVCS – Restore PZR level during OTSG tube rupture K/A – 006A4.02 RO 4.0 SRO 3.8 (EOP-6)	**[SRO-U]** **[RO. SRO-I]**	A, D, P, S	2
c.	RCS – Respond to a stuck open PZR spray valve K/A – 002A4.01 RO 4.2 SRO 4.4 (AP-520)	**[RO, SRO-I]**	A, D, L, P, S	3
d.	S/GS – Establish EFW flow to raise OTSG level K/A – E03EA1.3 RO 3.6 SRO 3.8 (EOP-3)	**[RO. SRO-I]**	D. S	4 Primary
e.	MSS – Perform actions for a stuck open MSSV K/A – 039A2.04 RO 3.4 SRO 3.7 (EOP-2)	**[RO. SRO-I]**	D, P, S	4 Secondary
f.	CCS – Ensure proper alignment of ES equipment K/A – 022A4.01 RO 3.6 SRO 3.6 (EOP-2)	**[SRO-U]** **[RO. SRO-I]**	A, EN, N, S	5
g.	AC – Energize a dead bus K/A – 062A2.05 RO 2.9 SRO 3.3 (AP-770)	**[RO]**	D, S	6
h.	ES – Respond to an invalid ES Actuation K/A – 008A3.08 RO 3.6 SRO 3.7 (AP-340)	**[RO, SRO-I]**	A, D, EN, S	8
SPARE	MU – Restart a MUP following an RCS leak isolation K/A – 002A2.01 RO 4.3 SRO 4.4 (AP-520)		D, S	2

In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

i.	PPCS – Depressurize the RCS using HP Aux. Spray K/A – E14EA1.1 RO 3.8 SRO 3.6 (EOP-14, Enc. 13)	**[RO. SRO-I]**	D, E, R	3
j.	DHR – Establish DHR from outside control room K/A – A06AA1.1 RO 4.3 SRO 4.2 (AP-990)	**[SRO-U]** **[RO, SRO-I]**	E, L, N, R	4 Primary
k.	AC – Transfer vital bus to normal power supply K/A – 062A3.04 RO 2.7 SRO 2.9 (OP-703)	**[SRO-U]** **[RO, SRO-I]**	D	6
SPARE	FS/OTSG – Transfer excess secondary inventory to FST K/A – 038EK3.06 RO 4.2 SRO 4.5 (EOP-14, Enc. 9)		D, E	3, 8

@	All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path		4-6 / 4-6 / 2-3
(C)ontrol room		
(D)irect from bank		≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant		≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	(control room system)	- / - / ≥ 1
(L)ow Power / Shutdown		≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1 (A)		≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams		≤ 3 / ≤ 3 / ≤ 2
(R)CA	(randomly selected)	≥ 1 / ≥ 1 / ≥ 1
(S)imulator		

Facility: **Crystal River Unit 3** Date of Exam: **08/31/09 thru 09/21/09** Operating Test No: **1**

	1. General Criteria	Initials A	Initials B*	Initials C#
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	AK	FL	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	AK	FL	
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	AK	FL	
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	AK	FL	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	AK	FL	
	2. Walk-Through Criteria	--	--	--
a.	Each JPM includes the following, as applicable: • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee • operationally important specific performance criteria that include: – detailed expected actions with exact criteria and nomenclature – system response and other examiner cues – statements describing important observations to be made by the applicant – criteria for successful completion of the task – identification of critical steps and their associated performance standards – restrictions on the sequence of steps, if applicable	AK	FL	
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.	AK	FL	
	3. Simulator Criteria	--	--	--
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.		AK	FL	

		Printed Name / Signature	Date
a.	Author	Alan Kennedy	07/20/09
b.	Facility Reviewer(*)	Floyd Lawrence	07/20/09
c.	NRC Chief Examiner (#)	GERARD W. LASKA	08/25/2009
d.	NRC Supervisor	MALCOLM T. WIDMANN	08/26/09

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Facility: Crystal River Unit #3	Date of Exam: 08/31/09 thru 09/21/09
Scenario Numbers: 1 / 2 / 3 / 4	Operating Test Number: 1

QUALITATIVE ATTRIBUTES		Initials a	Initials b*	Initials c#
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.	AK	FL	
2.	The scenarios consist mostly of related events.	AK	FL	
3.	Each event description consists of: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)	AK	FL	
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.	AK	FL	
5.	The events are valid with regard to physics and thermodynamics.	AK	FL	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	AK	FL	
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.	N/A	N/A	
8.	The simulator modeling is not altered.	AK	FL	
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	AK	FL	
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.	AK	FL	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	AK	FL	
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).	AK	FL	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	AK	FL	

Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes 1	2	3	4	---	---	---
1.	Total malfunctions (5–8)	7	8	8	7			
2.	Malfunctions after EOP entry (1–2)	2	2	2	2			
3.	Abnormal events (2–4)	2	2	2	3			
4.	Major transients (1–2)	1	1	1	1			
5.	EOPs entered/requiring substantive actions (1–2)	2	1	2	2			
6.	EOP contingencies requiring substantive actions (0–2)	1	1	0	1			
7.	Critical tasks (2–3)	3	2	3	3			

Facility: **Crystal River #3** Date of Exam: **08/31/09 thru 09/21/09** Operating Test No.: 1

APPLICANT	EVENT TYPE	Scenarios – **CREW 1 - 2 SRO-I, 1 RO**												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ■ SRO-U ☐	RX	1												1	1	1	0
	NOR	4											4	2	1	1	1
	I/C	2/5/8/9							3/9				2/6/9	9	4	4	2
	MAJ	7							5				7	3	2	2	1
	TS	3/6												2	0	2	2
RO ☐ SRO-I ■ SRO-U ☐	RX		1											1	1	1	0
	NOR										4			1	1	1	1
	I/C		2/6/9					3/4/6/7/8/9			2/3/6/8/9			14	4	4	2
	MAJ		7					5			7			3	2	2	1
	TS							1/2			1/5			4	0	2	2
RO ■ SRO-I ☐ SRO-U ☐	RX											3		1	1	1	0
	NOR			4										1	1	1	1
	I/C			3/5/8						1/4/6/7/8		5/6/8		11	4	4	2
	MAJ			7						5		7		3	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: **Crystal River #3** Date of Exam: **08/31/09 thru 09/18/09** Operating Test No.: 1

APPLICANT	EVENT TYPE	Scenarios – **CREW 2 - 2 SRO-I, 1 RO**												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ■ SRO-U ☐	RX	1												1	1	1	0
	NOR	4												1	1	1	1
	I/C	2/5/8/9					1/2/4/8		3/9					10	4	4	2
	MAJ	7					6		5					3	2	2	1
	TS	3/6												2	0	2	2
RO ☐ SRO-I ■ SRO-U ☐	RX		1											1	1	1	0
	NOR													0	1	1	1
	I/C		2/6/9		3/4/5/7/8			3/4/6/7/8/9						14	4	4	2
	MAJ		7		6			5						3	2	2	1
	TS				1/2			1/2						4	0	2	2
RO ■ SRO-I ☐ SRO-U ☐	RX													0	1	1	0
	NOR			4										1	1	1	1
	I/C			3/5/8		3/5/7				1/4/6/7/8				11	4	4	2
	MAJ			7		6				5				3	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

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2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: **Crystal River #3** Date of Exam: **08/31/09 thru 09/18/09** Operating Test No.: 1

APPLICANT	EVENT TYPE	Scenarios – **CREW 3 - 2 SRO-I, 1 RO**												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ■ SRO-U ☐	RX	1										3		2	1	1	0
	NOR	4												1	1	1	1
	I/C	2/5/8/9					1/2/4/8					5/6/8		11	4	4	2
	MAJ	7					6					7		3	2	2	1
	TS	3/6												2	0	2	2
RO ☐ SRO-I ■ SRO-U ☐	RX		1											1	1	1	0
	NOR										4			1	1	1	1
	I/C		2/6/9		3/4/5/7/8						2/3/6/8/9			13	4	4	2
	MAJ		7		6						7			3	2	2	1
	TS				1/2						1/5			4	0	2	2
RO ■ SRO-I ☐ SRO-U ☐	RX													0	1	1	0
	NOR			4									4	2	1	1	1
	I/C			3/5/8		3/5/7							2/6/9	9	4	4	2
	MAJ			7		6							7	3	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: **Crystal River #3** Date of Exam: **08/31/09 thru 09/18/09** Operating Test No.: 1

APPLICANT	EVENT TYPE	Scenarios – **CREW 4 - 1 SRO-I, 1 SRO-U, 1 RO**												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ■ SRO-U ☐	RX													0	1	1	0
	NOR													0	1	1	1
	I/C				3/4/5/7/8				3/9					7	4	4	2
	MAJ				6				5					2	2	2	1
	TS				1/2									2	0	2	2
RO ☐ SRO-I ☐ SRO-U ■	RX													0	1	1	0
	NOR													0	1	1	1
	I/C						1/2/4/8	3/4/6/7/8/9						10	4	4	2
	MAJ						6	5						2	2	2	1
	TS							1/2						2	0	2	2
RO ■ SRO-I ☐ SRO-U ☐	RX													0	1	1	0
	NOR													0	1	1	1
	I/C					3/5/7				1/4/6/7/8				8	4	4	2
	MAJ					6				5				2	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: Crystal River #3	Date of Exam:08/31/09 thru 09/21/09					Operating Test No.: 1						
Competencies	APPLICANTS											
	RO ■ SRO-I □ SRO-U □				RO □ SRO-I ■ SRO-U □				RO □ SRO-I □ SRO-U ■			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	2/3/5/6/7/8/9	1/2/3/4/5/6/7/8	1/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9	2/3/5/6/7/8/9	1/2/3/4/5/6/7/8	1/2/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9	2/3/5/6/7/8/9	1/2/3/4/5/6/7/8	1/2/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9
Comply With and Use Procedures (1)	1/2/3/4/5/6/7/8/9	1/2/5 6/7/8	1/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9	1/2/3/5/6/7/8	1/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9	1/2/3/5/6/7/8	1/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9
Operate Control Boards (2)	1/2/3/5/6/7/8/9	1/2/3/4/5/6/7/8	1/3/4/5/6/7/8/9/	2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8	1/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8	1/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9
Communicate and Interact	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8	1/2/3/4/5/6/7/8/9	2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8	1/2/3/4/5/6/7/8/9	1/2/3/4/5/6/7/8/9
Demonstrate Supervisory Ability (3)					1/2/3/5/6/7/8/9	1/2/3/4/5/6/7/8	1/3/4/5/7/8/9	2/3/4/5/6/7/8/9	1/2/3/5/6/7/8/9	1/2/3/4/5/6/7/8	1/3/4/5/7/8/9	2/3/4/5/6/7/8/9
Comply With and Use Tech. Specs. (3)					3/6	1/2	1/2	1/5	3/6	1/2	1/2	1/5

Notes:

(1) Includes Technical Specification compliance for an RO.
(2) Optional for an SRO-U.
(3) Only applicable to SROs.

Instructions:

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

FINAL

Facility:	Crystal River Unit #3	Date of Exam:	September, 2009

Tier	Group	RO K/A Category Points											SRO-Only Points		
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	TOTAL	A2	G*	TOTAL
1. Emergency & Abnormal Plant Evolutions	1	3	2	4	N/A			3	3	N/A		3	18			6
	2	2	1	1				1	2			2	9			4
	Tier Totals	5	3	5				4	5			5	27			10
2. Plant Systems	1	2	3	3	3	3	2	2	3	2	2	3	28			5
	2	2	0	1	1	1	1	1	1	0	1	1	10			3
	Tier Totals	4	3	4	4	4	3	3	4	2	3	4	38			8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		3			2			3			2							

Note:

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7. * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to section d.1.b of ES-401 for the applicable K/As.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401	PWR Examination Outline	Form ES-401-2

Emergency and Abnormal Plant Evolutions – Tier 1 / Group 1

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
007 (BW/E02 & E10) Reactor Trip – Stabilization – Recovery – 1					X		007EA2.02 - Ability to determine or interpret the following as they apply to a reactor trip: Proper actions to be taken if the automatic safety functions have not taken place	4.3	1
008 Pressurizer Vapor Space Accident / 3						X	008AG2.1.23 - Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.3	1
009 Small Break LOCA / 3		X					009EK2.03 - Knowledge of the interrelations between the small break LOCA and the S/Gs.	3.0	1
011 Large Break LOCA / 3			X				011EK3.07 – Knowledge of the reasons for the following responses as they apply to the Large Break LOCA: Stopping HPI bypass flow **(recirc flow OK per GL)**	3.5	1
015/17 RCP Malfunctions /4	X						015/017AK1.05 – Knowledge of the operational implications of the following concepts as they apply to RCP malfunction (Loss of RC Flow): Effects of unbalanced RCS flow on in-core average temperature, core imbalance, and quadrant power tilt.	2.7	1
022 Loss of Rx Coolant Makeup / 2	X						022AK1.03 - Knowledge of the operational implications of the following concepts as they apply to Loss of Reactor Coolant Makeup: Relationship between makeup flow and PZR level	3.0	1
025 Loss of RHR System / 4					X		025AA2.01 - Ability to determine and interpret the following as they apply to the Loss of Decay Heat Removal System: Proper amperage of running LPI/decay heat removal/RHR pump(s)	2.7	1

ES-401	PWR Examination Outline	Form ES-401-2

Emergency and Abnormal Plant Evolutions – Tier 1 / Group 1

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
026 Loss of Component Cooling Water / 8			X				026AK3.02 - Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Services / Decay Heat Closed Cycle Cooling: The automatic actions (alignments) within the SWS / DCS resulting from the actuation of the ESFAS	3.6	1
027 PZR Pressure Control System Malfunction / 3			X				027AK3.04 - Knowledge of the reasons for the following responses as they apply to the PZR Pressure Control Malfunctions: Why, if PZR level is lost and then restored, that pressure recovers much more slowly.	2.8	1
029 ATWS / 1				X			029EA1.12 - Ability to operate and monitor the following as they apply to an ATWS: Reactor trip breakers	4.1	1
038 Steam Generator Tube Rupture / 3						X	038EG2.1.28 - Knowledge of the purpose and function of major system components and controls.	4.1	1
040 (BW/E05) Steam Line Rupture – Excessive Heat Transfer / 4									
054 Loss of Main Feedwater / 4				X			054AA1.01 - Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW): EFW controls, including the use of alternate EFW sources	4.5	1
055 Station Blackout / 6			X				055EK3.02 - Knowledge of the reasons for the following responses as they apply to the Station Blackout: Actions contained in EOP for loss of offsite and onsite power.	4.3	1
056 Loss of Offsite Power / 6				X			056AA1.05 - Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power: Initiation (manual) of safety injection process	3.8	1

ES-401	PWR Examination Outline							Form ES-401-2	
Emergency and Abnormal Plant Evolutions – Tier 1 / Group 1									
E/APE # / Name / Safety Function	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**K/A Topic(s)**	**IR**	**#**
057 Loss of Vital AC Instrument Bus / 6									
058 Loss of DC Power / 6	X						058AK1.01 - Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation	2.8	1
062 Loss of Nuclear Services Water / 4									
065 Loss of Instrument Air / 8						X	065AG2.4.8 - Knowledge of how abnormal operating procedures are used in conjunction with EOPs.	3.8	1
BW/E04 Inadequate Heat Transfer – Loss of Secondary Heat Sink / 4					X		BW/E04EA2.1 - Ability to determine and interpret the following as they apply to the (Inadequate Heat Transfer): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	3.2	1
077 Generator Voltage and Electric Grid Disturbances / 6		X					077AK2.03 – Knowledge of the interrelations between Generator Voltage and Electric Grid disturbances and the following: Sensors, detectors, indicators.	3.0	1
K/A Category Totals	3	2	4	3	3	3	Group Point Total		18/6

ES-401	PWR Examination Outline	Form ES-401-2

Emergency and Abnormal Plant Evolutions – Tier 1 / Group 2

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
001 Continuous Rod Withdrawal / 1					X		001AA2.05 - Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Uncontrolled rod withdrawal from available indications	4.4	1
003 Dropped Control Rod / 1	X						003AK1.10 - Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Definitions of core quadrant power tilt	2.6	1
005 Inoperable/Stuck Rod / 1			X				005AK3.05 - Knowledge of the reasons for the following responses as they apply to the Inoperable / Stuck Control Rod: Power limits on rod misalignment	3.4	1
024 Emergency Boration / 1									
028 PZR Level Malfunction / 2									
032 Loss of Source Range NI / 7									
033 Loss of Intermediate Range NI / 7									
036 (BW/A08) Fuel Handling Accident / 8									
037 Steam Generator Tube Leak / 3									
051 Loss of Condenser Vacuum / 4									
059 Accidental Liquid RadWaste Rel. / 9									

ES-401	PWR Examination Outline							Form ES-401-2	
Emergency and Abnormal Plant Evolutions – Tier 1 / Group 2									
E/APE # / Name / Safety Function	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**K/A Topic(s)**	**IR**	**#**
060 Accidental Gaseous Radwaste Rel. / 9									
061 ARM System Alarms / 7						X	061AG2.2.12 - Knowledge of surveillance procedures.	3.7	1
067 Plant Fire On-site / 8									
068 (BW/A06) Control Room Evac. / 8	X						BW/A06AK1.3 - Knowledge of the operational implications of the following concepts as they apply to the (Shutdown Outside Control Room): Annunciators and conditions indicating signals, and remedial actions associated with the (Shutdown Outside Control Room).	3.4	1
069 Loss of CTMT Integrity / 5									
074 Inad. Core Cooling / 4					X		074EA2.03 - Ability to determine or interpret the following as they apply to a Inadequate Core Cooling: Availability of turbine bypass valves for cooldown	3.8	1
076 High Reactor Coolant Activity / 9									
BW/A01 Plant Runback / 1									
BW/A02&A03 Loss of NNI-X/Y / 7						X	BW/A02AG2.2.12 - Knowledge of surveillance procedures. **(Loss of NNI-X while performing an SP OK per GL)**	3.7	1
BW/A04 Turbine Trip / 4									
BW/A05 Emergency Diesel Actuation / 6									

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions – Tier 1 / Group 2						Form ES-401-2	
E/APE # / Name / Safety Function	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**K/A Topic(s)**	**IR**	**#**
BW/A07 Flooding / 8		X					BW/A07AK2.1 - Knowledge of the interrelations between the (Flooding) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.7	1
BW/E03 Inadequate Subcooling Margin / 4									
BW/E08 LOCA Cooldown - Depress. / 4				X			BW/E08EA1.1 - Ability to operate and / or monitor the following as they apply to the (LOCA Cooldown): Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	4.0	1
BW/E09 Natural Circ. / 4									
BW/E13&E14 EOP Rules and Enclosures									
K/A Category Totals	2	1	1	1	2	2	Group Point Total		9/4

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 1											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump / 4						X						003K6.14 - Knowledge of the effect of a loss or malfunction on the following will have on the RCPs: Starting Requirements	2.6	1
004 Chemical and Volume Control / 1 & 2		X										004K2.06 - Knowledge of bus power supplies to the CVCS control instrumentation.	2.6	1
005 Residual Heat Removal / 4		X										005K2.01 - Knowledge of bus power supplies to the DH pumps.	3.0	1
						X						005K6.03 - Knowledge of the effect of a loss or malfunction on the following will have on the Decay Heat System: DH heat exchanger	2.5	1
006 Emergency Core Cooling / 2 & 3					X							006K5.04 – Knowledge of the operational implications of the following concepts as they apply to ECCS: Brittle fracture, including causes and preventative actions	2.9	1
								X				006A2.10 - Ability to (a) predict the impacts of a low boron concentration in the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of this malfunction.	3.4	1
007 PZR Relief/Quench Tank / 5										X		007A4.09 - Ability to manually operate and/or monitor in the control room: relationships between PZR level and changing levels of the PRT and bleed holdup tank	2.5	1
008 Component Cooling Water / 8				X								008K4.02 - Knowledge of SWS / DCS design feature(s) and/or interlock(s) which provide for operation of the surge tank, including the associated valves and controls.	2.9	1

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 1											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
008 Component Cooling Water / 8							X					008A1.03 - Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS / DCS controls including: CCW pressure.	2.7	1
010 Pressurizer Pressure Control / 3					X							010K5.01 - Knowledge of the operational implications of the following concepts as the apply to the PZR PCS: Determination of condition of fluid in PZR, using steam tables	3.5	1
012 Reactor Protection / 7											X	012G2.4.6 – Knowledge of EOP mitigation strategies.	3.7	1
					X							012K5.01 - Knowledge of the operational implications of the following concepts as they apply to the RPS: DNB	3.3	1
013 Engineered Safety Features Actuation / 2		X										013K2.01 - Knowledge of bus power supplies to the ESFAS / safeguards equipment control.	3.6	1
022 Containment Cooling / 5				X								022K4.01 - Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: Cooling of reactor building penetrations.	2.5	1
026 Containment Spray / 5							X					026A1.01 - Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the BSS controls including: Reactor Building pressure	3.9	1
039 Main and Reheat Steam / 4			X									039K3.05 - Knowledge of the effect that a loss or malfunction of the MRSS will have on the following: RCS	3.6	1

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 1												Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
059 Main Feedwater / 4									X			059A3.04 - Ability to monitor automatic operation of the MFW, including: Turbine driven feed pump	2.5	1
			X									059K3.02 - Knowledge of the effect that a loss or malfunction of the MFW will have on the following: EFW system	3.6	1
061 Auxiliary / Emergency Feedwater / 4			X									061K3.02 - Knowledge of the effect that a loss or malfunction of the EFW will have on the following: S/G	4.2	1
062 AC Electrical Distribution / 6								X				062A2.16 - Ability to (a) predict the impacts of the following malfunctions or operations on the AC distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Degraded system voltages	2.5	1
063 DC Electrical Distribution / 6									X			063A3.01 - Ability to monitor automatic operation of the dc electrical system, including: Meters, annunciators, dials, recorders, and indicating lights	2.7	1
064 Emergency Diesel Generator / 6											X	064G2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	4.1	1
				X								064K4.01 - Knowledge of ED/G system design feature(s) and/or interlock(s) which provide for the following: Trips while loading the ED/G (frequency, voltage, speed)	3.8	1
073 Process Radiation Monitoring / 7										X		073A4.03 - Ability to manually operate and/or monitor in the control room: Check source for operability demonstration	3.1	1

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 1											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
076 Service Water / 4											X	076G2.4.8 - Knowledge of how abnormal operating procedures are used in conjunction with EOPs.	3.8	1
078 Instrument Air / 8	X											078K1.04 - Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Cooling water to compressor	2.6	1
103 Containment / 5								X				103A2.03 - Ability to (a) predict the impacts of the following malfunctions or operations on the reactor building system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Phase A and B isolation	3.5	1
	X											103K1.01 - Knowledge of the physical connections and/or cause-effect relationships between the reactor building system and the following systems: CCS	3.6	1
K/A Category Totals	2	3	3	3	3	2	2	3	2	2	3	Group Point Total		28/5

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 2											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
001 Control Rod Drive / 1								X				001A2.12 - Ability to (a) predict the impacts of the following malfunctions or operations on the CRDS; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations: Erroneous ECP calculation	3.6	1
002 Reactor Coolant / 2 & 4														
011 Pressurizer Level Control / 2														
014 Rod Position Indication / 1														
015 Nuclear Instrumentation / 7			X									015K3.01 - Knowledge of the effect that a loss or malfunction of the NIS will have on the following: RPS	3.9	1
016 Non-nuclear Instrumentation / 7										X		016A4.02 - Ability to manually operate and/or monitor in the control room: Recorders	2.7	1
017 In-core Temperature Monitor / 7					X							017K5.02 - Knowledge of the operational implications of the following concepts as they apply to the ITM system: Saturation and subcooling of water	3.7	1
027 Containment Iodine Removal / 5	X											027K1.01 - Knowledge of the physical connections and/or cause-effect relationships between the CIRS and the following systems: CSS	3.4	1
028 Hydrogen Recombiner and Purge Control / 5														
029 Containment Purge / 8														

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 2											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
033 Spent Fuel Pool Cooling / 8							X					033A1.01 - Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating Spent Fuel Pool Cooling System controls including: Spent fuel pool water level.	2.7	1
034 Fuel Handling Equipment / 8											X	034G2.2.40 – Ability to apply Technical Specifications for a system.	3.4	1
035 Steam Generator / 4														
041 Steam Dump/Turbine Bypass Control / 4						X						041K6.03 - Knowledge of the effect of a loss or malfunction on the following will have on the Turbine Bypass Valves: Controller and positioners, including ICS, S/G, CRDS	2.7	1
045 Main Turbine Generator / 4														
055 Condenser Air Removal / 4														
056 Condensate / 4	X											056K1.03 - Knowledge of the physical connections and/or cause-effect relationships between the Condensate System and the following systems: MFW	2.6	1
068 Liquid Radwaste / 9				X								068K4.01 - Knowledge of design feature(s) and/or interlock(s) which provide for the following: Safety and environmental precautions for handling hot, acidic, and radioactive liquids	3.4	1
071 Waste Gas Disposal / 9														
072 Area Radiation Monitoring / 7														
075 Circulating Water / 8														

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 2												Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
079 Station Air / 8														
086 Fire Protection / 8														
K/A Category Totals	2	0	1	1	1	1	1	1	0	1	1	Group Point Total		10/3

RO

Tier/ Group	Randomly Selected K/A	Reason for Rejection
1/1	011EK3.04	Not applicable to CR3. Containment fan coolers have no dampers. Chief Examiner randomly selected new KA #011EK3.07.
1/1	022AK1.02	Not possible to prepare a psychometrically sound question related to this KA. High delta P, more flow. Low delta P, less flow. Chief Examiner randomly selected new KA#022AK1.03.
1/1	055EK2.04	No IR value assigned in NUREG-1122. Chief Examiner randomly selected new KA #055EK3.02.
1/2	001AA2.02	Not possible to prepare a psychometrically sound question related to this KA. Chief Examiner randomly selected new KA #001AA2.05.
2/1	006K5.01	Not applicable to CR3. Our ECCS system has no water level input for automatic operation and no manual operator actions based on water level. Chief Examiner randomly selected new KA #006K5.04.
2/1	103A2.05	Not possible to prepare a psychometrically sound question related to this KA. Chief Examiner randomly selected new KA #103A2.03.
Generic	2.1.35	IR value only 2.2 for ROs. Chief Examiner randomly selected new KA #G2.1.36.
1/1	007EA2.05	Not applicable to CR3. CR3 does not have "first-out" alarm indications for a reactor trip. Chief Examiner randomly selected new KA #007EA2.02.
1/1	056AA1.28	Not applicable to CR3. CR3 does not have SW/RW flow control valves. Chief Examiner randomly selected new KA #056AA1.05.
2/2	028A2.03	At CR3 actions for this KA are SRO only level knowledge. Chief Examiner randomly selected new KA #028A2.02.
2/2	028A2.02	Not possible to prepare a psychometrically sound question related to this KA. Chief Examiner randomly selected new KA #001A2.12.

FINAL

Facility:	Crystal River Unit #3	Date of Exam:	September, 2009

Tier	Group	RO K/A Category Points											SRO-Only Points		
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	TOTAL	A2	G*	TOTAL
1. Emergency & Abnormal Plant Evolutions	1				N/A					N/A			18	3	3	6
	2												9	2	2	4
	Tier Totals												27	5	5	10
2. Plant Systems	1												28	3	2	5
	2												10	2	1	3
	Tier Totals												38	5	3	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
														2	2	1	2	

Note:

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to section d.1.b of ES-401 for the applicable K/As.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions – Tier 1 / Group 1							Form ES-401-2	
E/APE # / Name / Safety Function	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**K/A Topic(s)**	**IR**	**#**
007 (BW/E02 & E10) Reactor Trip – Stabilization – Recovery - 1									
008 Pressurizer Vapor Space Accident / 3									
009 Small Break LOCA / 3									
011 Large Break LOCA / 3									
015/17 RCP Malfunctions /4									
022 Loss of Rx Coolant Makeup / 2					X		022AA2.01 - Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Pump Makeup: Whether makeup line leak exists	3.8	1
025 Loss of RHR System / 4									
026 Loss of Component Cooling Water / 8									
027 PZR Pressure Control System Malfunction / 3						X	027AG2.4.9 - Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of DH) mitigation strategies.	4.2	1
029 ATWS / 1									
038 Steam Generator Tube Rupture / 3									
040 (BW/E05) Steam Line Rupture – Excessive Heat Transfer / 4									
054 Loss of Main Feedwater / 4									
055 Station Blackout / 6									

ES-401	PWR Examination Outline	Form ES-401-2

Emergency and Abnormal Plant Evolutions – Tier 1 / Group 1

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
056 Loss of Offsite Power / 6						X	056AG2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	4.3	1
057 Loss of Vital AC Instrument Bus / 6					X		057AA2.05 - Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: S/G pressure and level meters	3.8	1
058 Loss of DC Power / 6					X		058AA2.03 - DC loads lost; impact on ability to operate and monitor plant systems.	3.5	1
062 Loss of Nuclear Services Water / 4									
065 Loss of Instrument Air / 8									
BW/E04 Inadequate Heat Transfer – Loss of Secondary Heat Sink / 4									
077 Generator Voltage and Electric Grid Disturbances / 6						X	077AG2.2.12 - Knowledge of surveillance procedures.	4.1	1
K/A Category Totals					3	3	Group Point Total		18/6

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions – Tier 1 / Group 2								Form ES-401-2
E/APE # / Name / Safety Function	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**K/A Topic(s)**	**IR**	**#**
001 Continuous Rod Withdrawal / 1									
003 Dropped Control Rod / 1									
005 Inoperable/Stuck Rod / 1									
024 Emergency Boration / 1									
028 PZR Level Malfunction / 2									
032 Loss of Source Range NI / 7									
033 Loss of Intermediate Range NI / 7									
036 (BW/A08) Fuel Handling Accident / 8									
037 Steam Generator Tube Leak / 3									
051 Loss of Condenser Vacuum / 4									
059 Accidental Liquid RadWaste Rel. / 9									
060 Accidental Gaseous Radwaste Rel. / 9									
061 ARM System Alarms / 7					X		061AA2.06 - Ability to determine and interpret the following as they apply to the Area Radiation Monitoring (ARM) System Alarms: Required actions if alarm channel is out of service	4.1	1
067 Plant Fire On-site / 8									

ES-401	PWR Examination Outline	Form ES-401-2

Emergency and Abnormal Plant Evolutions – Tier 1 / Group 2

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
068 (BW/A06) Control Room Evac. / 8									
069 Loss of CTMT Integrity / 5						X	069AG2.2.38 – Knowledge of conditions and limitations in the facility license.	4.5	1
074 Inad. Core Cooling / 4									
076 High Reactor Coolant Activity / 9									
BW/A01 Plant Runback / 1									
BW/A02&A03 Loss of NNI-X/Y / 7						X	BW/A03AG2.4.6 - Knowledge of EOP mitigation strategies.	4.7	1
BW/A04 Turbine Trip / 4									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
BW/E03 Inadequate Subcooling Margin / 4									
BW/E08 LOCA Cooldown - Depress. / 4									
BW/E09 Natural Circ. / 4					X		BW/E09EA2.2 - Ability to determine and interpret the following as they apply to the (Natural Circulation Cooldown): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	4.0	1
K/A Category Totals					2	2	Group Point Total		9/4

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 1											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump / 4														
004 Chemical and Volume Control / 1 & 2														
005 Residual Heat Removal / 4								X				005A2.01 - Ability to (a) predict the impacts of the following malfunctions or operations on the Decay Heat System, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure modes for pressure, flow, pump motor amps, motor temperature, and tank level instrumentation	2.9	1
006 Emergency Core Cooling / 2 & 3														
007 PZR Relief/Quench Tank / 5														
008 Component Cooling Water / 8														
008 Component Cooling Water / 8														
010 Pressurizer Pressure Control / 3														
012 Reactor Protection / 7											X	012G2.2.12 – Knowledge of surveillance procedures.	4.1	1
013 Engineered Safety Features Actuation / 2														

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 1											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
022 Containment Cooling / 5														
026 Containment Spray / 5														
039 Main and Reheat Steam / 4											X	039G2.4.20 – Knowledge of the operational implications of EOP warnings, cautions, and notes.	4.3	1
059 Main Feedwater / 4														
061 Auxiliary / Emergency Feedwater / 4														
062 AC Electrical Distribution / 6								X				062A2.01 - Ability to (a) predict the impacts of the following malfunctions or operations on the AC distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Types of loads that, if de-energized, would degrade or hinder plant operation	3.9	1
063 DC Electrical Distribution / 6														
064 Emergency Diesel Generator / 6														
073 Process Radiation Monitoring / 7														

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 1												Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
076 Service Water / 4								X				076A2.01 - Ability to (a) predict the impacts of the following malfunctions or operations on the RWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of RWS	3.7	1
078 Instrument Air / 8														
103 Containment / 5														
K/A Category Totals								3			2	Group Point Total		28/5

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 2											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
001 Control Rod Drive / 1														
002 Reactor Coolant / 2 & 4								X				002A2.02 - Ability to (a) predict the impacts of the following malfunctions or operations on the RCS; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations: Loss of coolant pressure	4.4	1
011 Pressurizer Level Control / 2														
014 Rod Position Indication / 1											X	014G2.1.27 - Knowledge of system purpose and / or function.	4.0	1
015 Nuclear Instrumentation / 7														
016 Non-nuclear Instrumentation / 7														
017 In-core Temperature Monitor / 7														
027 Containment Iodine Removal / 5														
028 Hydrogen Recombiner and Purge Control / 5														
029 Containment Purge / 8														
033 Spent Fuel Pool Cooling / 8														

ES-401	PWR Examination Outline Plant Systems – Tier 2 / Group 2											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
034 Fuel Handling Equipment / 8								X				034A2.01 - Ability to (a) predict the impacts of the following malfunctions or operations on the Fuel Handling System; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations: Dropped fuel element	4.4	1
035 Steam Generator / 4														
041 Steam Dump/Turbine Bypass Control / 4														
045 Main Turbine Generator / 4														
055 Condenser Air Removal / 4														
056 Condensate / 4														
068 Liquid Radwaste / 9														
071 Waste Gas Disposal / 9														
072 Area Radiation Monitoring / 7														
075 Circulating Water / 8														
079 Station Air / 8														
086 Fire Protection / 8														
K/A Category Totals								2			1	Group Point Total		10/3

SRO

Tier/ Group	Randomly Selected K/A	Reason for Rejection
1/2	061AA2.02	Not possible to prepare a psychometrically sound question related to this KA. Chief Examiner randomly selected new KA #061AA2.06.
2/1	062A2.14	Not possible to prepare a psychometrically sound question related to this KA. Chief Examiner randomly selected new KA #062A2.01.
2/2	027A2.01	Not applicable to CR3. Containment iodine removal is accomplished via the RB Spray system. There are NO filters associated with this system. Chief Examiner randomly selected new KA #034A2.01.
2/2	028A2.01	Not applicable to CR3. No hydrogen recombiner or hydrogen recombining equipment at CR3. Chief Examiner randomly selected new KA #002A2.02.
1/1	065AA2.04	Not possible to write an SRO level question for this KA. Chief Examiner randomly selected new KA #058AA2.03.

ES-401 **Written Examination Quality Checklist** **Form ES-401-6**

Facility: **Crystal River Unit 3** Date of Exam: **08/31/09 thru 09/22/09** Exam Level: RO ■ SRO ■

Item Description				Initial a	Initial b*	Initial c#
1.	Questions and answers are technically accurate and applicable to the facility.			AK	FL	
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.			AK	FL	
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			AK	FL	
4.	The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL program office).			AK	FL	
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: __ the audit exam was systematically and randomly developed; or __ the audit exam was completed before the license exam was started; or __ the examinations were developed independently; or X the licensee certifies that there is no duplication; or __ other (explain)			AK	FL	
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank: 37 / 8	Modified: 0 / 0	AK	FL	
			New: 38 /17			
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory: 35 / 5	C/A: 40 / 20	AK	FL	
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			AK	FL	
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.			AK	FL	
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.			AK	FL	
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.			AK	FL	

	Printed Name / Signature	Date
a. Author	Alan Kennedy	09/08/09
b. Facility Reviewer (*)	Floyd Lawrence	09/08/09
c. NRC Chief Examiner (#)	GERARD W. LASKA	09/17/09
d. NRC Regional Supervisor	MALCOLM T. WILLIAMS	09/17/09

Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation

Instructions

[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]

Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.

Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).

Check the appropriate box if a psychometric flaw is identified:

- The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
- The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
- The answer choices are a collection of unrelated true/false statements.
- The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable.
- One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).

4. Check the appropriate box if a job content error is identified:
   - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
   - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - The question requires reverse logic or application compared to the job requirements.

5. Check questions that are sampled for conformance with the approved K/A and those that are *designated SRO-only* (K/A and license level mismatches are unacceptable).

6. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?

7. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
01/76	H	2				X	X					X	B	U	**002A2.02** May not meet K/A. (Question meets the second portion, but can be written to meet both) What is the impact on the RCS of lowering RCS Pressure? You are testing the impact of a component that will affect RCS Pressure. Borderline SRO. Distractor C may also be considered correct as written. Nothing in the stem makes a failed number 1 seal on 1B plausible. **NEW Understand Issues will continue to work.** **8/5/2009** **CR3 – Replaced question.**
02/77	H	2											X	U	**005A2.01** Appears to meet K/A. Not SRO only. This question can be answered using systems knowledge, and procedure entry requirements. The only item in this question that would indicate upcoming pump damage is pump cavitation. **NEW Continue to work** **CR3 – Replaced question.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
03/78	F	2											X	S S	**012G2.2.12** Question appears to match K/A. Question may not be SRO only. This appears to be a precaution/limitation in the surveillance procedure. Who performs the procedure? If this procedure is performed by an RO then this is RO knowledge. Will discuss. **NEW Procedure not performed by RO Sat** **CR3 – No change.**
4/79	H	2	X											E S	**014G2.1.27** Question kind of matches K/A. Appears to be SRO only. Why do you state in the distractors "for SDM purposes," the basis document discusses control rod operability as a function of being able to insert into the core. By this definition the rod is operable IAW TS 3.1.4. Some enhancements in the structure of the question are needed. **MOD 2006 Oconee NRC Exam (need to see the original question or this will be treated as a bank question)** Made several changes to stem and all distractors. SAT 8/5/2009. **CR3 – Modified as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
5/80	H	2	X				X							E S	**022AA2.01** Question appears to match K/A. What in the conditions of the stem allows the operator to determine that a small PZR steam space leak is not occurring? What is incorrect about going through the first steps of AP 520? **NEW Changes to stem (event/ appropriate path) SAT** 8/5/2009 **CR3- Modified as discussed.**
6/81	H	2	X			X							X	U S	**027AGG2.4.9** Kind of matches K/A. As written, not SRO only. Distractors A and C are not plausible (535 degrees is not even close to PTS concerns). Ask what action is required, not what action you would direct the RO to take. If A and C are not plausible, then the question can be answered using systems knowledge, therefore not SRO only. Made changes to stem to make a and C more plausible. SRO only. **NEW** SAT 8/6/2009 **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
7/82	H	2	X											E S	**034A2.01** Question appears to match K/A. Appears to be SRO only. Stem focus needs to be improved. Which ONE of the following choices "Correctly" completes the .... Is the Iodine removal factor a common term at CR-3? **NEW Made changes to stem and distractors. SAT. 8/6/2009** **CR3 – Modified as discussed.**
8/83	H	2												S S	**039G2.4.20** Question appears to match the K/A. Appears to be SRO only. **NEW** **CR3 – No change.**
9/84	H	2												S S	**056AG2.4.45** Question appears to match the K/A. Appears to be SRO Only. **NEW** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
10/85	H	3											X	U S	**057AA2.05 Question appears to match the K/A. Question does not appear to be SRO only. Although the step is in the middle of the procedure, the applicant need only know which EFW pump valves could be controlled to determine that the #1 EFW pump should be started.** **NEW Changed the stem. All distractors, Moved picture. SAT. 8/6/2009** **CR3 – Modified as discussed.**
11/86	F	2												S S	**061AA2.06** Question appears to match the K/A. Appears to be SRO only. **NEW** **CR3 – No change.**
12/87	H	2											B	E S	**062A2.01** Question appears to match K/A. Borderline SRO will Discuss. Otherwise sat. **NEW** **Added EOP- 14 enclosure 7. SAT.** **CR3 – Modified as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
13/88	H	2											X	U	**065AA2.04** Question appears to match K/A. Does not appear to be SRO only. Typically when to trip the reactor on loss of Instrument air is an RO knowledge item. **NEW Gerry to select new K/A.** **NEW KA – 058AA2.03** **CR3 – Wrote new question.**
14/89	H	2	X											E S	069AG2.2.38 Question appears to match K/A. Appears to be SRO only. The way the question is written, it appears that the plant is in mode 4, and it is okay to continue to heat up (and stay in mode 4). The question should be is the plant allowed to change modes. What reference is to be provided to the applicant? Second part of question needs some work. **NEW Changed stem and distractors. SAT 8/6/2009** **CR3 – Modified as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
15/90	H	2												E S	**076A2.01** Question appears to match K/A. With an operability assessment of the UHS, the question appears to be SRO only. The operability determination needs to be more pronounced. (the UHS is operable/ inoperable). **BANK Changed stem and distractors SAT 4/06/2009** **CR3 – Modified as discussed.**
16/91	H	2	X										X	U	**077AG2.2.**12 Question kind of matches K/A. This question is based on the precautions and limitations of SPs. Who normally performs these SPs? If these are performed by an RO, then the RO is also responsible for the P and L's, and this is not an SRO level question. What is the difference between an EGDG and an ES DG. Are we talking about the same diesel in this question? Did not find in SP-354A the step that directs the CRS to have the operator perform SP907A enclosure 2. Not sure that there is a correct answer for the question as written. **NEW Made some changes to stem. Will have another examiner look at.** **CR3 – No change yet.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
17/92	H	2					X						X	U S	**BW/A03AG2.4.6** Question appears to match K/A. Not sure this is SRO only. This appears to be a question on EOP/AOP procedure usage that may be both RO and SRO knowledge. I found no material that supports answer D as the only correct answer, in fact answer B could also be correct, if the SRO determined that he did not have an operator available to perform the ARP. Need to tighten up the question. MOD Need a copy of the original question to verify that this is a modified question. Made changes to stem and all distractors. **SAT 8/07/2009.** **CR3 – Modified as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
18/93	H	2										X	X	U	**BW/E09EA2.2** Question does not meet the K/A. The K/A asks for the Ability to determine and interpret the following as they apply to the Natural Circulation Cooldown): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments. The question as written lists the procedure flowpath from the point of entry into the EOPs until the final procedure selection is made. No limitations are being tested. This procedure flowpath can be determined from procedure entry requirements, therefore it is not SRO only. Rewrite using limits for cooldown. **CR3 – Wrote new question.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
19/94	F	2				X								U S	**G2.1.5** (Question in exam submittal has K/A as 2.1.15, but the ES 401-3 has the K/A listed as 2.1.5. Question appears to match K/A 2.1.5. Distractors A and B are essentially stating the same thing, if one is incorrect both are, and if one is correct, then both would be correct. Therefore, distractors A and B are not plausible. Replace distractors A and B. **BANK** **Changed A and B distractors and moved order of distractors. SAT. 8/7/2009.** **CR3 – Modified as discussed.**
20/95	H	2											B	E S	**G2.1.8 Question appears to match K/A.** Not Sure if it is SRO only. Could the answer be determined using only systems knowledge? Will discuss. **NEW** **Made changes to stem and discussed why question was SRO only. SAT 8/7/2009** **CR3 – Modified as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
21/96	H	2					X							E S	**G2.2.37** Question appears to match K/A. Appears to be SRO only based on the basis documents required. Need to ensure that all other distractors are truly incorrect. **BANK** **Added IAW TS SAT 8/7/2009.** **CR3 – Modified as discussed.**
22/97	F	2												S S	**G2.2.43** Question appears to match the K/A. Appears to be SRO only. As written the question is a little confusing, may want to consider changing the format. **NEW** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
23/98	F	2				X							X	U	**G2.3.15** Questions appears to match K/A. Not sure it is SRO only. It appears that you are testing the purposes of the radiation monitors. This is an RO knowledge item. Distractors B and D are not plausible. Why would anyone use the fuel building radiation monitor to determine anything on a Large Break LOCA? It also appears that mechanical damage is only used for the spent fuel pool. **NEW** **CR3 – Wrote new question.**
24/99	F	2											X	U	**G2.4.29** Question appears to match the K/A. This question appears to be just the definition of a classification. Could be considered GET knowledge. Does not appear to be SRO knowledge. **BANK (got second opinion from an additional examiner).** **Rewrite 8/7/2009** **CR3 – Replaced question.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
25/100	H	2		X									X	E S	**G2.4.3** Question appears to match K/A. May not be SRO. Why do you give the details of EOP-03 step 3.14. This is cuing. Question is very similar to #64 on the RO Exam. **NEW Upon further review, question is SRO only. Removed teaching from the stem. Question SAT 8/4/2009.** **CR3 – Modified as discussed.**

5 Sats, ~~12~~ 8 Unsats, and 8 Enhancements

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation

Instructions

[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]

Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.

Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).

Check the appropriate box if a psychometric flaw is identified:

- The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
- The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
- The answer choices are a collection of unrelated true/false statements.
- The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable.
- One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).

4. Check the appropriate box if a job content error is identified:
   - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
   - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - The question requires reverse logic or application compared to the job requirements.

5. Check questions that are sampled for conformance with the approved K/A and those that are *designated SRO-only* (K/A and license level mismatches are unacceptable).

6. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?

7. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
1	H	2				X								E S	**001AA2.05** Question appears to match K/A. Distractors A and B may not be plausible. What procedure actions would be taken if MUV-31 was open (attempt to close MUV-31). **NEW** **Explained the plausibility of distractors A and B Question is SAT 8/13/2009** **CR3 – No change.**
2	H	2										X		U	**003AK1.10** Question does not appear to match the K/A. The K/A is knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Definitions of core quadrant power tilt. This question is dealing with a mis-aligned control rod. **BANK Licensee to change to dropped rod, will change power levels to match. And Verify that the correct technical Spec limit is the only correct answer. Will also run on simulator to verify indications.** **8/13/2009** **CR3 – Modified question as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
3	F	2				X								E S	**003K6.14** Question kind of matches the K/A. Distractor B, is not plausible. Are both oil lift pumps for the B RCP always running when preparing to start the pump? Does the applicant have to make any assumptions? **BANK** **CR3 – Lowered RCS pressure to 1000# to make more plausible. Removed "electrically" from stem. RCP-1B is the only RCP with 2 oil pumps. If a lift oil pump were to trip on any of the other RCPs then "A" distractor would be true.**
4	H	2										X		U S	**004K2.06** Question does not appear to match K/A. What CVCS instrumentation power supply is being tested? **MOD (need to see original question to ensure it is modified).** **Discussed changes to valve fails closed/ manual control is not available, etc. Will review revised question. 8/13/2009** **CR3 – All distractors modified per discussion.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
5	H	2												S	**005AK3.05** Question appears to match K/A. May want to add the word limits after DNBR and LHR. Otherwise SAT. **MOD (need to see original question to ensure it is modified).** **CR3 – replaced "criteria is" with "limits are"**
6	H	2				X					X			E S	**005K2.01** Question kind of matches K/A, using a backwards logic. Distractor C may not be plausible. Note in EOP 12 states not to use any procedures while in EOP except for AP 880, so why would someone pick distractor C? **NEW** **CR3 – No change. RO has to know of the existence of that NOTE in order to rule out "C" distractor.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
7	H	2												E S	**005K6.03** Question Kind of matches K/A. Not sure if testing 3 items is going to work (i.e. open/closed/heatup) to answer the question correctly you only have two know what two of the components will do, to narrow the correct answer down. **BANK** **CR3 – No change. Closed/closed and open/open valve positions not plausible. That was my reason for needing 3 items.**
8	F	2												S S	**006A2.10** Question appears to match the K/A. SAT. Need to make sure that all of the distractors are actually incorrect. **NEW** **CR3 – Deleted part of 1st item in each distractor. Not needed. Per TS bases "C" is the only correct answer.**
9	H	2												S S	**006K5.04** Question appears to match the K/A. SAT. **NEW** **CR3- No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
10	H	2										X		E S	007A4.09 Not sure if the question meets the K/A. Are the RCDT parameters higher than normal operating parameters? It appears from your distractor analysis that they are, but with pressurizer level not changing (I understand that level control is in automatic and would mask a leak of this magnitude) and all others beside the RB sump stable I need to verify that the RCDT parameters have changed from normal operating parameters. **BANK** **CR3 – No Change. RCDT pressure normally maintained less than 2 psig to ensure seal leakage is not routed to the RB sump.**
11	F	2				X								E S	**007EA2.02** Question appears to match K/A. Not sure if C is plausible. Does EOP-02 ever direct the operator to open these breakers? If not this is not plausible (IAW EOP-2.0) **MOD (need to see original question to ensure it is modified).** **CR3 – Changed number of control rods stuck out. Breakers in distractor "C" may be opened in the previous step of EOP-02.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
12	H	2				X								U S	**008A1.03** Question appears to match K/A. Distractors A and D do not appear to be plausible. If NPSH is maintained why would you enter an LCO, and if NPSH is not maintained, why would you not enter the LCO? **NEW** **Changed stem to start with conditions, and then changes to conditions. Will continue to work 8/13/2009.** **CR3 – Modified per discussion. The nitrogen overpressure on the tank is not an NPSH concern.**
13	H	2												S S	**008AG2.1.23** Question appears to match K/A. Sat **NEW** **CR3 – Changed "could/should" in stem to "would/will".**
14	M	1												S S	008K4.02 Question appears to match K/A. Not very discriminating. **BANK** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
15	H	1												S S	**009EK2.03** Question appears to match K/A. Not very discriminating. The cooldown rate should be closer to the limit. Otherwise sat. **BANK** **CR3 – Changed excessive/acceptable to above/below TS limit to remove subjectivity.**
16	F	1										X		U	**010K5.01** Not sure this matches the K/A. What is the condition of fluid in PZR? We make no mention of this. Not very discriminating. **BANK** **Continue to work question to match K/A including operational implications. (consider general operating procedure actions) 8/13/2009** **CR3 – Replaced question.**
17	H	2												S S	**011EK3.07** Question appears to match K/A. SAT **NEW** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
18	F	1												S **S**	**012G2.4.**6 Question kind of matches K/A. Low discriminating value. Otherwise SAT. **NEW** **CR3 – No change.**
19	F	2												S **S**	**012K5.01** Question appears to match K/A. Top part of stem is not needed. Need to ensure that b, c, and d are not correct. Otherwise SAT **NEW** **CR3 – Removed top part of stem. "B", "C" and "D" verified incorrect.**
20	H	2												S **S**	**013K2.01** Question appears to match K/A. SAT **BANK** **CR3 – No change.**
21	H	2												S **S**	**015/017AK1.05** Question appears to match K/A. **NEW** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
22	H	2												S S	**015K3.01** Question appears to match K/A. Add axial to the -6% imbalance in the stem. Otherwise SAT (Why do they need a reference? **MOD (need to see original question to ensure it is modified).** **CR3 – Added "axial power" to stem. Removed reference, not needed to answer question.**
23	H	2												S S	016A4.02 Question appears to match K/A. SAT **BANK** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
24	H	2	X	X								X		U	**017K5.02** Question kind of matches K/A. Although the applicant can correctly answer the question and not match the K/A. The question has three items being tested in each distractor, 1. How many core exit thermocouples are used , 2. where does the subcooling inputs come from SPDS, and 3. if an inadequate cooling event is in progress. An applicant need only know that SPDS is the input, and that 8 thermocouples are used and can answer this question without determining if the plant is subcooled, saturated, or superheated. Need to remove one of the items being tested to ensure that the K/A is being adequately tested. **BANK** **Change to highest and average, and subcooled or saturated. 8/13/2009** **CR3 – Modified question as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
25	H	2		X										U S	**022AK1.03** Question appears to match K/A. Again the question is testing three items, and the applicant need only know two of the items to arrive at a correct answer. Need to lower the number of items being tested to two. Use remain the same/throttled as one of the choices. **NEW** **Will Make changes to a 2 and 2 format.** **CR3 - Modified question as discussed.**
26	F	2												S S	**022K4.01** Question appears to match K/A. SAT **NEW** **CR3 – No change.**
27	M	2												S S	**025AA2.01** Question appears to match K/A. SAT **MOD (need to see original question to ensure it is modified).** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
28	F	2				X								E S	**026A1.01** Question appears to match the K/A. What position are the BSV-3 &4 valves in with out HPI activation? Are these valves normally open or closed. I think one of the distractors (or two) should state closed if you think that someone might miss that a manual activation should have been implemented. Will discuss. **NEW** **CR3- Changed B and D distractors from "throttled" to "closed".**
29	F	2				X								U S	**026AK3.02** If this is the equivalent of the CCW system then the question meets the K/A. Reasons on Distractors C and D are not plausible. How would SW be a heat input to the RB? **NEW Rewrite to include leakage from RB via the SW system as the correct reason. Also need a clearly wrong but plausible reason for the other distractor. Also add times with RBIC and SWT level in the stem.** **CR3 – Modified as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
30	H	2				X								E S	**027AK3.04** Question appears to match the K/A. Change distractor C to read lower because all pressurizer heaters must be manually reset to energize. **BANK** **CR3 – No change. Two banks of heaters will automatically reset once level rises above 40".**
31	F	2												S S	**027K1.01** Question appears to match K/A. **SAT** **NEW** **CR3 – No change.**
32	F	2										X		U S	**028A2.02** Question as written meets only the first part of the K/A. There are not any procedure usage steps to control correct, or mitigate the consequences. The b part of the K/A must be met. **NEW** **Not operationally valid for an RO, no actions in current procedures. Gerry to supply New K/A.** **NEW K/A Number 001A2.12** **CR3 – New question written.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
33	M	2					X							U	**029EA1.12** Question kind of matches K/A. Can reactor trip breakers be manually opened? If 3305 and 3312 did not open from the control room, would it not be prudent to go to step 2.3? I am not sure that we should test ROs on what is in the cross-step document. We should be testing them on the procedure being used. Will Discuss. What is incorrect about distractor B? **NEW Determined that the question does meet the K/A. Licensee will look at changing to remove so much of the information in the distractors to simplify the answer.** **CR3 – No change yet.**
34	H	2												S **S**	**033A1.01** Question appears to match K/A. SAT **BANK** **CR3 – No change.**
35	H	2												S **S**	**034G2.2.40** Question appears to match K/A. SAT. Reference OK. TS-3.7.15 **NEW** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
36	H	2												S S	**038EG2.1.28** Question appears to match K/A. Isn't C always correct? Will discuss otherwise SAT. **NEW** **CR3 – No change. C is correct only if ADVs are open.**
37	F	1												S S	**039K3.05** Question appears to match K/A. Low discriminatory value. Otherwise SAT. **BANK** **CR3 – No change.**
38	H	2												E S	**041K6.03** Question appears to match K/A. how the failure affects Turbine control and TBV should be included. i.e. ICS will lower header pressure and the plant will trip if no actions are taken. **MOD (need to see original question to ensure it is modified).** **CR3 – No change. Plant will not trip. Only controlling setpoint for turbine control will be 15 psig higher.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
39	F	2												S **S**	**054AA1.01** Question appears to match K/A. SAT **BANK** **CR3 – No change.**
40	F	2												S **S**	**055EK3.02** Question appears to match K/A. SAT **BANK** **CR3 – No change.**
41	H	2												S **S**	**056AA1.05 Question appears to match the K/A. SAT** **CR3 – Deleted some fluff from stem. Not needed to answer question.**
42	F	2												S **S**	**056K1.03** Question appears to match K/A. SAT **BANK** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
43	H	2												S S	**058AK1.01** Question appears to match K/A. SAT **NEW** **CR3 – No change.**
44	H	2												S S	**059A3.04** Question appears to match K/A. SAT **NEW** **CR3 - No change.**
45	H	2												S S	**059K3.02** Question appears to match K/A. Might want to add directly cause a EFW actuation. Otherwise SAT **NEW** **CR3 – Does not directly cause and EFW actuation. Valve stroking causes the booster pump to trip which in turn causes the main FW pumps to trip which then actuates EFIC.** **CR3 - No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
46	F	2												S S	**061AG2.1.12** Question appears to match K/A. SAT Question was listed as C/A, but appears to be a memory level question. **NEW** **CR3- No change in question content. Changed C/A to MEM.**
47	H	2												S S	**061K3.02** Question appears to match K/A. SAT **MOD (need to see original question to ensure it is modified).** **CR3 – No change.**
48	H	2												S S	**062A2.16** Question appears to match K/A. SAT **MOD (need to see original question to ensure it is modified).** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
49	F	2												E S	**063A3.01** Question appear to match K/A. Distractor D may be considered a correct statement. For the light to go out batt volts must be less than 72 volts, if it is less than 72 volts, and the battery charger is till aligned then it too would be less than 72 volts, and battery charger voltage would be less than 124 volts. Will discuss **NEW** **CR3 – No change.**
50	H	2												E S	**064G2.4.45** Question appears to match the K/A. Again the question is testing three items, and the applicant need only know two of the items to arrive at a correct answer. Need to lower the number of items being tested to two. **NEW** **CR3 – Modified to test only 2 items per distractor.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
51	H	2												E S	**064K4.01** Question appears to match K/A. However, the first two distractors are electrical trips and very few electrical trips will trip the engine. If the imbalance is enough, enough torque could be generated to damage the engine, and the engine would trip then. Would this make any of these correct? Need to work on this question some to make it more clear and tight. **NEW** **CR3 – Only other electrical engine trip is the 87DG – generator differential OC. Changed distractors A and B to relay actuations that will trip the breaker, but not the engine.**
52	H	2												E S	**065AG2.4.**8 Question appears to match K/A. Fire protection is only listed in one distractor along with the SBO procedure, and AP -880 with a fire in place why would I not pick this one. Need to add Fire protection to one of the other choices as well. May also want to Take EOP 12 out of some of the distractors. Will discuss. **NEW** **CR3- AP-880 listed in 2 distractors. Added names of procedures to stem and removed from distractors.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
53	F	2												E S	**068K4.01 Question appears to match the K/A.** Again the question is testing three items, and the applicant need only know two of the items to arrive at a correct answer. Need to lower the number of items being tested to two. Will discuss. **NEW** **CR3 – No change.**
54	F	2												S S	**073A4.03** Question appears to match K/A. Not very discriminating. **BANK** **CR3 – No change.**
55	H	2												S S	**074EA2.03** Question appears to match K/A. Very little discriminating value. Reference is okay. **BANK** **CR3 – No change.**
56	H	2												S S	**076G2.4.8** Question kind of matches K/A. **SAT** **NEW** **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
57	H	2												S S	**077AK2.03** Question kind of matches K/A. SAT **NEW** **CR3 – No change.**
58	F	2												S S	**078K1.04** Question kind of matches K/A. SAT If the high temperature is 125°F will the compressor ever get to 130°F? May want to change this number. **BANK** **CR3 – Slightly modified all temperatures. Changed B distractor to CDP-1A from FWP-2A for plausibility.**
59	H	2												E S	**103A2.03** Question kind of matches K/A. What is wrong with diverse containment isolation? B could be argued as correct. NEW **CR3 – No change.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
60	F	2												U	**103K1.01** Question does not meet the K/A. The K/A is asking for the physical connections and/or cause effect relationships between the reactor building and the containment cooling system, not the containment spray system. Unless the only cooling for the RB is containment spray) **BANK** **Develop a question on RB coolers/fans. Cause and effect. 8/13/2009** **CR3 – Replaced question.**
61	H	2												S **S**	**BW/A02AG2.2.12** Question Kind of matches K/A. SAT **NEW** **CR3 – No change.**
62	H	2												E **S**	**BW/A06AK1.3** Question kind of matches K/A. Is there anything wrong with using MUV-31 locally? If not you should state in the stem IAW AP-990. **BANK** **CR3 – Added IAW AP-990 to stem.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
63	F	2										X		U	**BW/A07AK2.1** Question may not meet K/A. Asked for another opinion. Determined that question did not meet K/A. **CR3 – Wrote new question.**
64	H	2												E S	**BW/E04EA2.1** Question appears to match K/A. Very similar to # 25 on the SRO examination. **BANK** **CR3 – No change. Compared with SRO #25 on 8/13/09 and determined to be SAT.**
65	F	2	X	X		X								U S	**BW/E08EA1.1** Question kind of matches K/A. Some cueing in stem. Distractors B and D do not appear to be plausible. How could SW temperatures exceed design limits if the coolers were degraded / fouled? Which ONE of the following describes the reason for ensuring only 1 ES selected RB cooling unit is running in low speed per EOP-8A… **MOD (need to see original question to ensure it is modified).** **CR3 – Modified stem slightly. Determined SAT with this change on 8-13-09.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
66	F	2				X								E	**G2.1.3** Question appears to match K/A. Distractor D is not plausible. What kind of turnover between the OAC and BOP is required? Need to add this to make better choices. (better discriminating value) **NEW** **Gerry to write new distractor for D. 8-19-09** **CR3 -**
67	H	2				X								E **S**	**G2.1.36** Question appears to match K/A. Distractor C does not make sense. Cease insertion of fuel assembly? What will the crew do with it? Stop and hold it in place. Please explain why this is plausible. **BANK** **CR3 – Modified C distractor.**
68	F	2												S **S**	**G2.1.40** Question appears to match K/A. SAT **MOD (need to see original question to ensure it is modified).** **CR3 – No change**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
69	F	2				X								E S	**G2.2.20** Question kind of matches K/A. Not sure if distractor D is plausible. Did not see in AI-500 where this was an option at any time. **BANK** **CR3 – No change.**
70	F	2												S S	**G2.2.38** Question appears to match K/A. Place wide range and narrow range in front of RB sump level (i.e. wide range RB sump level and …) Otherwise SAT. **BANK** **CR3 – Modified as requested.**
71	F	2										X		U	**G2.3.11** May not meet K/A. How are operators / plant controlling the release? Asked for a second opinion. Distractors B and C do not appear to be plausible. **MOD (need to see original question to ensure it is modified.** **Will write a containment release (RMA1) that does not totally isolate.** **CR3 – Modified as discussed.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
72	F	2												S S	**G2.3.12** Question appears to match K/A. SAT **BANK** **CR3 – Modified stem to remove fluff. No change in intent.**
73	F	2												S S	**2.3.14** Question appears to match K/A. SAT Not very discriminating. **NEW** **CR3 – No change.**
74	F	2				X								U	**2.4.35** Question kind of matches K/A. Distractors B &D are not plausible. Do the 480V switchgear rooms have DC knife switches located in them? **BANK** **Will work on another angle to make better distractors.** **CR3 – Removed "knife switch" from stem and modified C and D distractors.**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/ S	Explanation
75	F	2												E S	**G2.4.8** Question appears to match K/A. Could the shift manager also be the procedure director? **NEW** **CR3 – Not unless all the other SROs were unavailable. The SM could, but IAW AI-505, he would not due to other duties.**

40 Sats, ~~14~~ 10 Unsats, and 21 Enhancements

Generic Comments: All bank or modified questions should have the answers rotated from original (i.e. if the answer was originally A, swap the correct answer to B, C, or D.

Need to see the original questions for all modified questions.

ES-403, Rev. 9 | **Written Examination Grading Quality Checklist** | Form ES-403-1

Facility: Crystal River 3	Date of Exam: 09/22/2009	Exam Level: **RO/SRO**

Item Description	Initials a	b	c
1. Clean answer sheets copied before grading	[signature]	N/A	[signature]
2. Answer key changes and question deletions justified and documented	[signature]		[signature]
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	[signature]		[signature]
4. Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail	[signature]		[signature]
5. All other failing examinations checked to ensure that grades are justified	N/A		N/A
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	[signature]		[signature]

	Printed Name/Signature	Date
a. Grader	F.J. EHRHARDT	10/7/09
b. Facility Reviewer(*)	N/A	N/A
c. NRC Chief Examiner (*)	GERARD W. LASKA	10/19/2009
d. NRC Supervisor (*)	MALCOLM T. WIDMANN	10/26/09

(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.

Facility: Crystal River #3 Date of Exam: 9-22-09 Exam Level: RO [X] SRO [X]

Item Description	Initials a	Initials b	Initials c
1. Clean answer sheets copied before grading	A	H	
2. Answer key changes and question deletions justified and documented	A	H	
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	A	H	
4. Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail	A	H	
5. All other failing examinations checked to ensure that grades are justified	A	H	
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	A	H	

	Printed Name/Signature	Date
a. Grader	ALAN KENNEDY Alan Kennedy	9-24-09
b. Facility Reviewer(*)	Floyd Lawrence Floyd Lawrence	9/26/09
c. NRC Chief Examiner (*)		
d. NRC Supervisor (*)		

(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.